WHAT AND WHO IS AN EPIDEMIOLOGIST?

Comments on an editorial published in the April, 1942, issue of the JOURNAL.

Our thanks are due John R. Paul, M.D., Professor of Preventive Medicine, Yale University School of Medicine, for the following:

In seeking the answer to the nice question posed I am prompted to define certain qualifications which one might seek in a man to head up a department of epidemiology in a hypothetical medical school. These qualifications depend, of course, on one's definition of Epidemiology, and, if forced to give this in a sentence, one could say that Epidemiology is that subject (not yet elevated to the position of a science) which deals with the circumstances under which people get sick. Such a definition does not imply that epidemiology is limited to infectious diseases or to epidemics, or that one necessarily has to deal with *many* sick and *many* well people in order to "practise" epidemiology. Zenker elucidated the epidemiology of trichinosis from one case; and there is a growing list of examples of the study of *familial epidemiology* in which much was learned from but a few families.

With this clinical approach in mind, the qualifications of our hypothetical candidate should consist in:

A clinical background—He should not only have had clinical training but it is desirable that this training should have struck deep enough into his soul so that through the greater part of his working life he could maintain the clinician's point of view, because epidemiology deals with sick people. This maintenance of the clinician's point of view does not necessarily mean that he must keep up membership in the county medical society, but he should keep up contact with patients and should bring *clinical* judgment to bear on his problems rather than other types of judgment. He should not have to resort to scattergrams to show that all individuals of the same age group are not alike. His diagnostic methods are apt to be more like those of a detective than of a "trouble shooter." He should regard all clinical data with healthy suspicion.

The training for this should be an M.D. degree, an interneship, and perhaps an assistant residency on either the medical or pediatric service in a good hospital; or even an assistancy in one of these departments in a medical school. This experience should serve to put our candidate on either one or the other side of the fence, which separates the sheep from the goats. The distinction is important, if we believe in the words of Dr. Theobald Smith, who stated that by their very nature the clinician and the public health man use different methods in their approach to problems of human disease.

Bacteriological training—Early in the candidate's postgraduate career (probably during his assistant residency) he should be exposed to a certain amount of *responsibility* in the handling of bacteriological methods. These methods should include work with bacteria, viruses, or protozoa, and work in clinical immunology—subjects which perhaps come to life best in a hospital laboratory. Such clinical bacteriological training is important, but of course it is only one part of the picture, for bacteriology is certainly not epidemiology.

Statistical training—Having followed

our candidate through a clinical and laboratory course of sprouts, we come to the most difficult part of his training. He should be willing to interrupt his career long enough to familiarize himself with statistical methods so useful to the practice and study of epidemiology. Knowledge of such methods is of great value. That they are the beginning and end of epidemiology is doubted, even though one occasionally finds a "portentous epidemiologist" who seems to be equipped only with statistical tools and someone else's figures.

Experimental epidemiology — It is also possible, though unlikely, that our candidate may have taken a year off to try his hand in the field of experimental epidemiology; but so far relatively few investigators have developed this important subject.

Experience with field work—Our candidate would be fortunate indeed if early in his career he could have the opportunity of applying his bacteriological and statistical methods in the study of disease in the field (viz.: in the home, in an institution, in the factory, or in a small or large community). This experience is really training in Clinical Ecology—and if it "took," he would probably never be happy doing "office" work alone.

Experience with "public health epidemiology"—Useful also would be some experience in the epidemiological division of a municipal, county, or state department of health. Probably more positions of this type exist than in any other branch of the subject, and so it is this particular aspect that comes to one's mind when the title "epidemiologist" is mentioned.

Formal training—The question of formal schooling, of degrees and courses in epidemiology might be raised. Such training would be nice but it seems to be the least valuable of the experiences already mentioned. It carries with it the risk of substituting overtraining or stagnation in lecture halls for years that might better have been spent in enthusiastic work in the field or laboratory. The advantages of such training are that they may aid an individual in his search for certain kinds of jobs. But while theoretical training may be an introduction, it should never be a substitute for the practical experience needed by our candidate.

At this point it becomes obvious that one would have to seek far to find our candidate. Perhaps there are no such individuals and no medical school ready to use them. Perhaps this is the real answer to the question which the editorial has raised, and so the discussion as to what and who is an epidemiologist really brings us to another point, namely: Where is there an epidemiologist?

Signing himself as "Retired Epidemiologist," Allen W. Freeman, M.D., Professor of Public Health Administration, The Johns Hopkins University, lets fly this searching but good-natured broadside:

The epidemiologist is the fellow who gets to town at the peak of the epidemic and coasts to glory on the down or eastern leg of the epidemic curve. He goes around with a sheaf of case cards in his hand and knocks on front doors, asking impertinent questions. When he has drained the community dry of what he then calls pertinent information, he goes into a huddle with a Monroe machine and comes out with a paper for the Epidemiological Society (by invitation). When he is too old to walk from car to door he becomes a statistical or armchair epidemiologist, or in extreme cases a professor.

Epidemiologists are not born ready made. Like diamonds, they are produced by the prolonged and skillful shaping and polishing of suitable raw material. Many sorts of raw material may be processed into epidemiologists, even, occasionally, bacteriologists. County health officers seem to make the best product.

James E. Perkins, M.D., Director, Division of Communicable Diseases, State Department of Health, Albany, N. Y., says this, in a letter to the Editor:

I cannot completely ignore the shoulder chip flipping Editorial in the April, 1942, issue of the JOURNAL. It really is not surprising, however that a query is made as to the means of identification of an epidemiologist since there are no obvious insignia designating these rare individuals (particularly rare if one confines discussion to the "epidemiologist vera"). Even the Johns Hopkins School of Hygiene and Public Health doesn't give a degree of "Doctor of Epidemiology," so it is obvious that an epidemiologist cannot substantiate his status by a beautifully scrolled certification to that effect. But an *epidemiologist* can tell *another* epidemiologist unerringly. It's like sex in the flea: "the sexes look alike, you see, but *he* can tell, and so can *she!*"*

As hinted above, there are two classes legitimately designated as epidemiologists. The first class comprises a broad group of individuals ("epidemiologist expansa") who are more or less authorities in "the science of mass pathology." A layman who has engaged in researches entirely devoted to gleaning from past literature shifts in the geographical and chronological distribution of diseases may perfectly well qualify as an epidemiologist in this class. He may, in fact, be much more entitled to the designation than a recent medical school graduate who, in order to fill empty and somewhat ragged pockets, accepts temporarily a position bearing the title "epidemiologist" in a local or state department of health.

Then there is the narrower definition of "epidemiologist." This restricted use of the term refers to an individual who, through training, but chiefly through heredity, has an unusual capacity to ferret out epidemiological data through actual field investigation. He is an individual who, as Dr. Godfrey says, has "an insatiable curiosity and a healthy skepticism." But he must have other qualities as well. He is merciless to shoe leather. He has a tactful aggressiveness and a reasonably thick hide, which enables him to ascertain from the housewife, as she does the weekly wash, the exact day two and a half weeks ago Aunt Hattie from the city visited the home with her ailing youngster, and enables him to secure specimens of body fluids or discharges in spite of a reluctance on the part of the owners thereof to part with their precious secretions or excretions. It is in this latter restricted sense that one hears the statement, "Now, there's a true epidemiologist!" Hence, the species designation, "Epidemiologist vera." Even though this is a more restricted group, its membership distinctly is not confined to physicians. Many a public health nurse and lay investigator has been appropriately revered as an Epidemiologist vera.

The one quality which I have yet to see in one considered to be an epidemiologist by those capable of evaluation is "portentousness of manner and mien," mentioned in the Editorial. Epidemiology is a science, and an epidemiologist worthy of the name has the humility, objectiveness, and dislike for affectation characteristic of the scientist.

* Source forgotten.